

Rehabilitation of Ninety-Six (96)  
Public Schools in Lebanon

LRPS-2023-9182373

Q&A

**BIDDERS QUESTIONS - Technical related**  
**All Schools Related Technical Questions:**

1. In LOTS 1-2-3-4-11 & 12: Please provide us with the power & low current risers, and power & low current layouts for all schools, only lighting plans and general details are shared.

Refer to the hereby attached Annexed Drawings

2. Please provide us with the details of the DB panel & ATS of each school of LOTS 1-2-3-5.

As per existing

3. LOT 1, 31-Ras Beirut Mixed Secondary School , optional sheet , Item 9.2 , New PV System to cover School Facilities : as per BOQ item description it includes 5 Kw hybrid inverter and the quantity is 8 No. , so is it meant to be eight zones of solar panels to include each one 5 kw hybrid inverter with related panels and batteries

Yes

4. LOT 3: Please clarify the item 8.1.1.3.1 1130 cm x 260 cm No. 10 in school no. 273-Magdal Baana Secondary Public School

Typo mistake shall be 310 cm x 260 cm

5. LOT 3: Please clarify the item 8.3.7.1 11800 cm x 335 cm No. 1 in school no. 329- Al Warhaniyeh Mixed

Typo mistake shall be 1180 cm x 335 cm

6. LOT 4: Concrete item 3.3 as per below with unit in m3. Kindly provide drawings and additional details

Refer to general detail

7. LOT 4: Please clarify the item 10.11 Prefabricated structure (360 m2) No. 1 in school no. 150- Aqbet Byaqout Mixed since the item included all works.

360 m2 refers to the average floor area

8. LOT 7: Please specify on the drawings which area of steel sheds to install sandwich panels on, since the area on the drawings is much more than the area mentioned in the BOQ. **(item no. 5.1.11)**

Refer to the quantities and areas indicated in the B.O.Q

9. LOT 7: Please specify on the drawings the concrete bench to be rehabilitated in Brital school **(item no. 30.1.10.1)**

Refer to drawing # 12- A 03

10. Please provide us with the drawings referring to the types of steel/concrete fences, since there are types mentioned in the BOQ but not in the drawings, such as "**Rehabilitation Existing Fence - Type 5**" in sariine school **(item no. 2.6.5)**

They are shown on drawing No. 11-A 04

11. LOT 8: Please provide us with a drawing referring to the fairfaced concrete finish with the required thickness and the location on the site plan **(item no. 3.1.4.1)**

No specific drawings for the fair-faced concrete finish. Please note that the fair-faced concrete item is to indicate the quantity of concrete work with fair-faced finish. The Unit of this Item is m2 as indicated in the BOQ.

12. LOT 8: Please specify on the drawings the concrete bench to be rehabilitated in al Qaroun school (**item no. 30.1.10.1**)

No benches in the Quaroun School the quantity 200 m is by Mistake in the B.O.Q; quantity to be zero

13. LOTS 7-8-9: Optional Items Part 4 [Item 1.4.3]: Dismantle, transport and delivered existing Asbestos exhaust pipes to designate land fill authorized by the municipality as per the regulations and replace them by seamless black steel pipes including insulations: Kindly indicate the Thickness of Black Steel Pipe & kindly advise if Jacketing is required

Black Steel pipe to be 3 mm thick without jacketing

14. LOT 7-8-9: Main Contract Part 2 [Item 1.4.2]: Rehabilitate all heating system including pumps, radiators, pipes, insulations, and all related accessories, and replace existing boiler by new one same capacity (if required) to ensure proper workable system: Price will cover testing, maintenance & rehabilitation of the exposed part of the system. After testing, detected defected items (embedded piping, pumps, boilers) will be subject of extra cost implication. Kindly advise

It is a lump Sum item with no extra cost, contractor should assess based on site visits

15. LOT 7-8-9 Main Contract Part 3 [Item 8.2], Lot 7-8-9 Optional Items \_Part 4 [Item 8.2], Lot 11-12 Main Contract [Item 4.15]: Supply, install and connect sand filter with related pump; Missing Data prior pricing the items: Flow, Material of the Filter Body (Resin or Steel), The Type of Head (Automatic or Manual), Kindly advise.

The material to be resin with automatic operation- or as per existing

16. LOT 7-8-9 With regards to the wooden doors item No.8.1.1, there are two types of frames available: one with a pressed steel frame, and the other without. Could you please indicate which doors belong to each type?

The price should be as per B.O.Q

Timber existing door to have timber frames similar to existing; all new doors to have new steel door frame

17. LOT-11-12 With regards to the wooden doors item No.8.2, there are two types of frames available: one with a pressed steel frame, and the other without. Could you please indicate which doors belong to each type?

As per plans door tags

18. LOT 11-12 Main Contract [Item 4.11]: Water treatment and water purification station Supply: Missing Data prior to price the item: Flow, Material of the Filter Body (Resin or Steel), The Type of Head (Automatic or Manual), Kindly advise

As per existing please refer to the existing treatment system in order to price this item

19. A number of 25 PE water tanks (2000 liters) are mentioned in the BOQ to be placed on the roof floor in Angelique Saliba Mixed Public School, but we do not have clear indication of the place where it will be placed? Also, we would like to mention the high weight of this water tank!

It will be placed near the staircase and regarding the load it was checked by the civil engineer.

20. <b>LOT-7-8-9</b> Please elaborate in the details of the new laboratories (number of counters- type of lab in each school etc.) <b>(item no. 10.3.3)</b>
<ul style="list-style-type: none"> <li>a. Number of counters for the new labs are mentioned on architectural drawings for each school where applicable.</li> <li>b. Details of Lab counters are mentioned in drawings GA142, and in specifications under Annex A “Counter Specifications” as per MEHE Specifications</li> <li>c. The required Lab type is Bio/Chemistry lab or as indicated on drawings.</li> </ul>
21. <b>LOT-7-8-9</b> Please provide the details and specification of the sound insulation boards to be installed in the special needs classrooms and the type of the protection required. <b>(item no. 10.7)</b>
<p>Sound insulation system consist of:</p> <ul style="list-style-type: none"> <li>a. Support frames (wood or galvanized steel) as primary construction</li> <li>b. 50 mm thick mineral wool suitable for ventilated façade insulation slab with minimum dusting and easy application properties and offer high level of thermal and sound insulation, as well as providing A1 reaction to fire class, Low thermal conductivity coefficient and resistant to heat transmission <math>\Delta = 0.035</math> W/m.k.</li> <li>c. Perforated Plaster/Gypsum Board as Protection board, perforation not more than 3.5mm holes; c/c 15mm perforation to edge.</li> </ul>
22. <b>LOT-7-8-9</b> Please specify the area to be waterproofed using polyurethane in each school. <b>(item no. 7.2)</b>
As indicated on drawings for toilets & kitchens
23. The number of the doors and windows is not clear in drawings compared with BOQ
Contractor to follow the BOQ
24. Please confirm that sheet steel disconnect switches are required as mentioned in the specification.
Will be used for outdoor/external areas.
25. Please confirm that cable tray with 2mm minimum thickness are required or advice if standard thickness may be used instead.
The cable tray must be provided with minimum 2 mm thick as per specs.
26. Fire Alarm System: <ul style="list-style-type: none"> <li>a. In the BOQ it is mentioned: the low Current BOQ is incomplete. The BOQ shows only Blocks 2, 3, 4, 5, 7 and 9 however there are 11 blocks in the project. Please advice</li> <li>b. In each block they need FARP(Fire Alarm Repeater Panel) but they didn't mention the Main Fire Alarm Control Panel: Is there is MFACP existing?</li> <li>c. In Block 7 there is only 3 smoke detectors. What about the other devices? Where is the FARP? How these smoke detectors will be connected?</li> <li>d. In the drawings 02-WH-02 LOW CURRENT and 04-WH-04 LOW CURRENT is showing Fire Alarm Panel 1 Loop. Is this Fire Alarm Panel for all the blocks? It is showing that this panel is interface with Main FACP?</li> <li>e. Is there MAFCP existing? What about the other blocks?</li> <li>f. If we follow the BOQ shall we consider in each Block there is a repeater panel or Fire Alarm Panel?</li> </ul>
N/A
27. CCTV System: <ul style="list-style-type: none"> <li>a. In the BOQ it is mentioned only CCTV camera. These cameras are Dome or Bullet or what type? It is not mentioned anything about the recording, is there is NVR? Is it for each block? Is there is an existing NVR?</li> <li>b. If we follow the BOQ shall we quote only the cameras?</li> </ul>

N/A
28. In some drawings the capacity of the PV system is mentioned but in others it is not. Can you please provide the capacity of the PV system proposed for each school? Also, in all cases, the capacity of the batteries and type is not specified; could you please clarify this?
<u>LOT 6-7-8-9</u> 545 W for each PV panel Battery type as mentioned in the specifications: Lithium Ion battery. Load of PV to cover lighting + half school load power except heavy duty mechanical equipment and elevators.
29. Please advise which autonomy shall we follow to quote the UPS systems: BOQ mentions 15 minutes at half load while Specs section 2.04.B mentions 30 minutes at full load
UPS autonomy time shall be 15 min at half load for all lots
30. Kindly note that the BOQ requests three phase 3kVA and 4kVA and specs mention 3ph input, 3ph output UPS systems; Knowing that the smallest UPS capacity with 3ph in/3ph out starts at 10KVA, kindly clarify if 10kVA 3/3 systems with batteries sized respectively at 3kVA and 4kVA load is required or if 3kVA and 4kVA 1ph/1ph are acceptable.
1ph/1ph are acceptable
31. You are kindly requested to provide us with some information regarding the items that need maintenance and/or reparations listed in the BOQ:
<ul style="list-style-type: none"> <li>a. Solar water heater maintenance</li> <li>b. Water treatment maintenance</li> <li>c. Reparation of pumps.</li> </ul>
<ul style="list-style-type: none"> <li>a. A period of 3 years after installation, testing &amp; commissioning</li> <li>b. No water treatment machines installation. It is only piping installations with provision for future machines installations</li> <li>c. It is mentioned on item 1.3.1</li> </ul>
32. What kind of insulation should we use for “sobya” pipes?
Insulation should be Rock Wool (100 mm thickness & 120 Kg/m <sup>3</sup> density) <b>as per specs</b>
33. Please advise on the thermal insulation with concrete cover for the exposed PPR pipes? What kind of insulation and what kind of concrete cover should we use?
Insulation of PPR pipes should be fiberglass as specified Protection aluminum jacketing 0.8 mm can be installed
34. I couldn't find the data for transfer and booster pumps set
Schedule of equipment are already provided either on the layout drawings (Roof Water Supply) and B.O.Q. items 4.9. <b>Additional Specs for pumps are enclosed hereby.</b>
35. <u>LOT-4-5</u> (Schools 142 & 216) Kindly specify the brand of the existing generator and the name of the supplier responsible of its maintenance.
Saccal

## **BOOSTER PUMP SETS FOR DOMESTIC WATER SUPPLY**

### A. General:

The booster pump set shall be as manufactured by the pump manufacturer. A pump manufacturer is defined as a company who is regularly engaged in the design and manufacture of the pumps specified, herein. The pump manufacturer shall have been in the business of manufacturing complete pumping systems for a minimum of ten (10) years.

An assembler of pumping systems not engaged in the design and manufacturing of the specified pumps or a representative of a pump manufacturer assembling systems, shall not qualify as a manufacturer of pumping systems.

### B. Pumping Unit:

1. Unit shall be packaged type comprising two or three pumps or as indicated on the drawings, diaphragm tanks, interconnecting pipework, valves, pressure switches and electric control panel all completely assembled on steel frame with approved vibration isolator, piped, wired and tested at factory and delivered as complete package unit ready for installation and operation with simple piping and electrical connections.
2. The booster set shall be automatically controlled by pressure switches starting pumps on fall of pressure in discharge manifold and stopping pumps on rise of pressure and also by demand flow rate. Pumps shall operate in sequence proportional to the demand, with the first pump operating at low demand and the other pumps shall cut-in automatically as the demand increases.
3. Each pump shall be centrifugal, vertical multistage, silent type directly coupled to electric motor. Motor speed shall not exceed 2900 rpm.
4. Each pump shall include brass ball valves at its suction and discharge, and a silent check valve on its discharge. Suction and discharge headers shall be stainless steel.
5. Pump suction/discharge chamber, motor stand and pump shaft coupling shall be constructed of cast iron. Impellers, pump shaft, diffuser chambers, outer discharge sleeve and impeller seal rings or seal ring retainers shall be constructed of stainless steel. Impellers shall be secured directly to the pump shaft via a splined shaft. Intermediate and lower shaft bearings shall be tungsten carbide and ceramic.
6. Coupling guard shall be constructed of stainless steel.
7. An internally lubricated, self-flushing mechanical seal shall be employed, with tungsten carbide faces mounted in stainless steel seal components. Seal shall be suitable for continuous operation at 120 deg. C.
8. Motor shall meet IEC specifications and shall be of the size and voltage called for on the Drawings. It shall have a grease-lubricated lower ball

bearing adequately sized to ensure long motor life. Motor shall have insulations class F and protection index IP55.

C. Sequence of Operation:

1. When line pressure drops, the pump shall operate and remain in operation until flow stops or the pressure switch reaches its high limit setting. A minimum run-time relay, adjustable type shall be provided to prevent frequent on/off operation. If pressure drops below a preset value, the second pump shall operate, and similarly for the third pump as applicable.
2. When suction water level drops to 100mm. above top of suction pipe, the pump shall stop by the action of a low level float switch; it shall not be able to run even if other controls call for its operation.
3. If operating pump fails to start, the second pump shall operate automatically.
4. An automatic alternating switch shall be provided to alternate pumps function after each cycle.
5. For each function specified with the panel, a pilot light shall be provided to indicate the status of the particular function. Pilot lights colours shall be selected in accordance with the function to be indicated.
6. A delay relay shall be incorporated within the panel to prevent immediate start-up upon re-establishment of power after power failure.
7. Variable frequency drive control shall be provided if indicated on the schedule of equipment.

D. Electric Control Cabinet:

1. Electrical control cabinet shall be heavy gauge mild steel sheet finished with stoved hammer paint internally and externally. It shall comply with relevant EC standards and shall have protection index IP 55.

2. The cabinet shall contain but not necessarily limited to the following:
  - Magnetothermal circuit breaker with motor current adjustment sliding contact and reset button.
  - Contactor one per pump.
  - 24-V safety transformer.
  - Terminal block.
  - General switch operated from outside by lockable handle.
  - Pump starting and stopping timer.
  - Timer of hold on last pump.
  - Dry running timer.
  - Grounding terminals.
  - Automatic relays.
  
3. The control panel front shall contain but not necessarily limited to the following:
  - Switch one per pump: automatic/off/forced operation (while pressed).
  - On indicator light, one per pump.
  - Fault light, one per pump.
  - Dry-running indicator.
  - Indicator, module in power-on condition.

E. Diaphragm Tank:

The diaphragm tank shall be cylindrical, closed type, made of welded mild steel plate for operating pressure of 10 bars with cylindrical shell and convex dished ends, shot blasted and coated with anti-corrosion paint internally and externally. The tank shall contain an easily interchangeable bladder or diaphragm made from one-piece EPDM or Butyl food processing grade.

The tank shall be precharged with nitrogen at factory to correct pressure to provide sealed air cushion. The tank shall have standard automobile type inflation valve protected by a cap, pressure gauge and ball shut-off valve. The diaphragm tank shall be approved by W.R.C. and in compliance with DIN 4807 or BS equivalent.

## **EXECUTION**

### **INSTALLATION OF PUMPS**

#### A. General:

1. Install pumps where indicated, in accordance with manufacturer's published installation instructions, with recommended clearance provided for service and maintenance.
2. Ensure that pump units are wired properly, with rotation in correct direction, and that pump and motor grounding have been provided. Refer to Division 16 for power wiring.
3. The pumps to be checked for correct rotation and meet the specified details regarding performance duty.
4. Install gate or butterfly valve and strainer on suction side of pump and a pressure gauge piped to read both suction and discharge. On the discharge side install silent check valve and double regulating valve. Flexible connections shall be installed on both sides of pump. Inlet piping shall be arranged to prevent the possibility of cavitations.

#### B. Base-Mounted Pumps: Unless otherwise indicated, install on minimum of 100 mm high concrete base equal or greater than 3 times total weight of pump and motor, with anchor bolts poured in place. Set and level pump, grout under pump base with non-shrink grout.

1. Pump and motor must be checked for alignment after the pump base has been installed and grouted in place. There shall be no strain transmitted to the pump. The concrete support shall be as recommended by the manufacturer and detailed on drawings. Provide cast supports in the lower half for securely bolting the pump body to the base plate. Suitable lifting lugs shall be provided to lift each part individually. Suitable instruments drain and vent connections, and other accessories shall be provided.
2. Anchor Bolts - Pump Bolts: Anchor bolts and nuts shall be steel and shall be furnished by pump manufacturer. Acceptable special washer and nuts to be furnished on the lower ends of the bolts unless pockets provided for access to the nuts. Expansion bolts shall not be used for anchoring pumping equipment.
3. Pump Connections: Pumps shall be provided with flanged inlets and outlets that are compatible with the pipeline to which it is connected.
4. Suction and Discharge Elbows: Provide each pump with a suction elbow

enclosed by the base or foundation. A reducing elbow shall be provided where suction pipe is larger than the suction flange. The suction and discharge connections shall be of the same pressure ratings as the adjoining pipes and fittings and shall be of such sizes that the velocity of each opening shall not exceed 3.6 m/sec.

- C. In-line Pumps: Support from piping system, and locate for access to oil cups, service, and maintenance.